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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/555,079	10/12/2006	John Mak	100325.0208US	9101

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EXAMINER

PETTITT, JOHN F

ART UNIT	PAPER NUMBER
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3744

NOTIFICATION DATE	DELIVERY MODE
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07/08/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/555,079	Applicant(s) MAK ET AL.	
	Examiner John F. Pettitt	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7 and 9-20 is/are pending in the application.
- 4a) Of the above claim(s) 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,9-15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 16 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in the reply filed on 4/7/2010. Applicant's election with traverse of group I (1-2, 4-7, 9-16) and species A - Figure 1 in the reply filed on 4/7/2010 is acknowledged. The traversal is found persuasive relative to the claimed groups, and claims 17-20 will be examined, however, the requirement for election of the species is maintained.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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Claims 1-2, 4, 10, 11, 12, 17, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over MarkBreiter (US 3837172) in view of Child (US 5295350). In regard to claims 1-2, 4, 10, 11, 12, 17, 19, MarkBreiter teaches a regasification plant comprising a liquid natural gas feed (1) that is split into a first (2) and second portion (9), a heat source (3) that is cooled by the first portion liquid natural gas (1) to thereby form a heated first vapor portion (5); an expander (6) expanding the heated first vapor portion (5) to form an expanded first vapor portion (7); a demethanizer (8) that receives the expanded first vapor portion (7) and the second portion (9) is used as reflux (column 2, lines 45-50); the demethanizer (8) is configured to produce a lean gas (14) and a bottom product (13); and a compressor (17) that is configured to compressor the lean gas (14) with work from the expander (6). MarkBreiter does not explicitly teach that the heat source comprises a combined cycle power plant (thereby using the LNG as a heat sink), heating the first vapor portion (5) to at least 125F and 1450 psig, or producing electric power with the expansion work from expander (6). However, it is well known to use LNG as a heat sink as taught by Child. Child teaches heating LNG (1) as a heat sink for a combined cycle power plant (see figure) to form vapor (122) having a temperature of at least 125F and a pressure of at least 1450 psig (column 13, lines 50-55) and expanding the vapor with a turbine (183) to produce electricity (via 184); Child also teaches that it is known to simultaneously use expansion work for running compression (125) and a electric power generation (127). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify MarkBreiter to supply cooling to the combined cycle power plant as taught by

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Child for the purpose of improving the efficiency of the power plant and for reducing the costs of heating the LNG. In regard to claim 18, Child teaches providing a fuel to the combined cycle power unit (via 91) from the liquefied natural gas (1).

Claims 5-7, 9, 13-15, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over MarkBreiter (US 3837172) in view of Child (US 5295350) and further in view of Burns (US 3362175). In regard to claims 5-6, MarkBreiter and Child teach most of the claim limitations as indicated previously, but do not explicitly teach that the bottom product of the demethanizer is further processed with a deethanizer. However, it is well known to further process the bottom product to separate ethane from heavier components, as taught by Burns (see demethanizer 10, and deethanizer 129 having ethane product at top and bottom product 26). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify MarkBreiter and Child to send the bottom product (13) to a deethanizer as taught by Burns for the purpose of separating ethane for use. In regard to claim 7, MarkBreiter, Child, and Burns teach most of the limitations but do not explicitly teach cooling the deethanizer reflux condenser with the first portion prior to heating and expansion. However, Child teaches that the liquid natural gas may be heated (via 11) prior to the heating and expansion (via 25, 183); this suggests that it would have been obvious to provide cooling duty to a deethanizer reflux condenser as a means of reducing the required external refrigeration. In regard to claim 9, see column 2, line 50-55. In regard to claim 13-14, see claims 5-7. In regard to claims 15, 20, it is noted that using the ethane for

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fuel for the system is seen as obvious to an ordinary practitioner in the art as hydrocarbons such as ethane are well known as fuels, and it is well known that ethane will increase the heating value of the fuel.

Claims 5-7, 9, 13-15, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over MarkBreiter (US 3837172) in view of Child (US 5295350) and further in view of Shue (US 6125653). In regard to claims 5-6, MarkBreiter and Child teach most of the claim limitations as indicated previously, but do not explicitly teach that the bottom product of the demethanizer is further processed with a deethanizer. However, it is well known to further process the bottom product to separate ethane from heavier components, as taught by Shue (see demethanizer 108, and deethanizer 130 having ethane product at top and bottom product). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify MarkBreiter and Child to send the bottom product (13) to a deethanizer as taught by Shue for the purpose of separating ethane for use. In regard to claim 7, MarkBreiter, Child, and Shue teach most of the limitations but do not explicitly teach cooling the deethanizer reflux condenser with the first portion prior to heating and expansion. However, Child teaches that the liquid natural gas may be heated (via 11) prior to the heating and expansion (via 25, 183); this suggests that it would have been obvious to provide cooling duty to a deethanizer reflux condenser as a means of reducing the required external refrigeration. In regard to claim 13-14, see claims 5-7. In regard to claims 15, 20, it is noted that using the ethane for fuel for the system is seen as obvious to an

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ordinary practitioner in the art as hydrocarbons such as ethane are well known as fuels, and it is well known that ethane will increase the heating value of the fuel. It is further noted that ethane is taught as fuel gas by Shue (column 5, lines 1-5).

Claims 5-7, 9, 13-15, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over MarkBreiter (US 3837172) in view of Child (US 5295350) and further in view of Gantt (US 2500353). In regard to claims 5-6, MarkBreiter and Child teach most of the claim limitations as indicated previously, but do not explicitly teach that the bottom product of the demethanizer is further processed with a deethanizer. However, it is well known to further process the bottom product to separate ethane from heavier components, as taught by Gantt (see demethanizer 91, and deethanizer 113 having ethane product at top 114 and bottom product 124). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify MarkBreiter and Child to send the bottom product (13) to a deethanizer as taught by Shue for the purpose of separating ethane for use. In regard to claim 7, MarkBreiter, Child, and Gantt teach most of the limitations but do not explicitly teach cooling the deethanizer reflux condenser with the first portion prior to heating and expansion. However, Child teaches that the liquid natural gas may be heated (via 11) prior to the heating and expansion (via 25, 183); this suggests that it would have been obvious to provide cooling duty to a deethanizer reflux condenser as a means of reducing the required external refrigeration. In regard to claim 13-14, see claims 5-7. In regard to claims 15, 20, it is noted that using the ethane for fuel for the system is seen as obvious

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to an ordinary practitioner in the art as hydrocarbons such as ethane are well known as fuels, and it is well known that ethane will increase the heating value of the fuel.

Response to Arguments

Applicant's arguments with respect to claims 1, 10 and 17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Pettitt whose telephone number is 571-272-0771. The examiner can normally be reached on M-F 8a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on 571-272-4834 or 571-272-

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6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John F Pettitt /
Examiner, Art Unit 3744

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art
Unit 3744

JFP III
June 23, 2010